What is claimed is:

1. A spacecraft emulation system comprising:

a central time source generating a time reference;

an emulated spacecraft control processor which contains an embedded processor that provides an emulated input/output interface to communicate simulated spacecraft data, wherein the embedded processor processes the simulated spacecraft data, and contains a real time clock having a real-time clock period;

a first simulation engine that processes attitude control system data from the emulated spacecraft control processor to simulate an attitude control system of the spacecraft in real-time, the first simulation engine operative to produce sensor data for input to the emulated spacecraft control processor based on the simulated system dynamics and adjusts the real time clock period in response and time reference.

2. The system as recited in claim 1 further comprising a host computer which provides the command data and receives the telemetry data and time data from the emulated spacecraft control processor.

3. The system of claim 1, wherein the attitude control system data is communicated via a VMEbus.

4. The system of claim 3, further comprising a VMEbus interface manager which communicates the command data, the telemetry data and time between the VMEbus and the host computer.

5. The system of claim 1, wherein the first simulation engine and the emulated spacecraft control processor are housed in a single housing.

6. The system as recited in claim 1 herein said the first simulation engine processes attitude control system data from the emulated spacecraft control processor to simulate an attitude control system of the spacecraft in real-time.

7. The system as recited in claim 1 wherein the central time source comprises a GPS generator.

8. A spacecraft simulation system housed in a single housing comprising:

a central time source generating a time reference;

an emulated spacecraft control processor which contains an embedded processor that provides an emulated input/output interface to communicate simulated spacecraft data, wherein the embedded processor processes the simulated spacecraft data and contains a master counter;

a first simulation engine coupled to the time central time source and the emulated spacecraft control processor, the first simulation engine operative to produce data for input to the emulated spacecraft control processor based on the simulated system dynamic, and adjusts a time parameter of a real time clock period in response to said master counter and said central time count.

9. The system of claim 8, wherein the time parameter comprises short-term bias.

10. The system of claim 8, wherein the time parameter comprises long term drift.

11. The system as recited in claim 8 wherein said the first simulation engine processes attitude control system data from the emulated

spacecraft control processor to simulate an attitude control system of the spacecraft in real-time.

12. The system as recited in claim 8 further comprising a second simulation engine which processes power, thermal, propulsion and payload subsystem data from the emulated spacecraft control processor or ground computer to simulate power, thermal propulsion and payload subsystems of the spacecraft in real-time, the second simulation engine operative to produce data from the power, thermal, propulsion and payload subsystems for input to the emulated spacecraft control processor or ground computer based on the simulated system dynamics.

13. The system of claim 10, wherein the power, thermal, propulsion and payload subsystem data includes simulated thermal command data, power command, propulsion command data, and payload command data.

14. The system as recited in claim 8 wherein the central time source comprises a GPS generator.

15. A method of testing an embedded processor, the method comprising the steps of:

providing an emulated spacecraft control processor which emulates a memory for the embedded processor;

generating a master counter count in the emulated spacecraft control processor;

generating a reference time from a central time source;

receiving master counter count and the reference time in a compute engine; and,

determining a short term bias and a long term drift in response to the reference time and master time counter count.

16. A method as recited in claim 14 further comprising the step of adjusting a real time clock in the simulated spacecraft control processor to compensate for the short term bias and long term drift.

17. A method as recited in claim 14 further comprising the step of adjusting a local time clock in the simulated spacecraft control processor to compensate for the short term bias and long term drift.

18. The method of claim 14 wherein the step of determining comprises the step of filtering the counter count and the compute engine.

19. The method of claim 8 further comprising the step of modifying a time frame of the compute engine.

20. The method of claim 14 further comprising the step of slaving the master count counter and the compute engine.

21. The method of claim 14 further comprising the step of time stamping data from the simulation engine with the central time.